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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,091	10/23/2001	Naoya Hasegawa	9281-4223	6620

7590 07/02/2004  
Brinks Hofer Gilson & Lione  
P.O. Box 10395  
Chicago, IL 60610

EXAMINER

MILLER, BRIAN E

ART UNIT	PAPER NUMBER
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2652

10

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/015,091

**Applicant(s)**

HASEGAWA, NAOYA

**Examiner**

Brian E. Miller

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21, 28-63 and 71 is/are pending in the application.
- 4a) Of the above claim(s) 7, 14, 21 and 28-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-21, 28-63 and 71 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Claims 1-21 & 28-63, 71 are now pending while claims 7, 14, 21, 28-63 remain withdrawn as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 12, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of the above claims include the language “has a thickness...in the track width direction” which appears to be misdescriptive. Thickness is conventionally indicated as a height dimension, so therefore it is not readily apparent whether the claim is actually referring to a height of the overlay section(s) or the width of it.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 3-4, 6, 8, 10-11, 13, 15, 17-18, 20, 71 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayashi (JP 2001-043512). (As per claims 1 & 71) Hayashi discloses a spin-valve thin-film magnetic read head (claim 8), as shown for example in FIG. 1, including: a laminate comprising, a free magnetic layer, a nonmagnetic conductive layer, an antiferromagnetic

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layer for pinning the magnetic moment of the pinned magnetic layer, and a pinned magnetic layer (see paragraph [0041] which discusses the layer arrangement(s)) disposed appropriately with respect to the free layer in the thickness direction (re claims 6, 13 & 20); a pair of hard magnetic bias layers 4 (see [0039]) on either side of the free magnetic layer in the track width direction; a pair of insulating layers 5 extending over the hard bias layers and both top ends of the laminate in the track width direction; a pair of lead layers 6 extending on the pair of insulating layers; wherein the pair of lead layers have overlay sections (unnumbered) which extend towards the center of the laminate and are in direct contact with parts of the laminate; (as per claims 3, 10 & 17) the insulating layers 5 are formed of an oxide including aluminum or silicon oxide (see paragraph [0036]); (as per claim 15) the described head would be utilized on a slider, e.g., substrate 52 (see FIG. 16 and [0062]); (as per claims 4, 11, 18) wherein the insulating layers has a thickness in the range of 0.5 nm to 20 nm, e.g., 20 nm (see [0066]).

5. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

6. Claims 1, 3-6, 8, 10-13, 15, 17-20, 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondo (JP 2000-207713). (As per claims 1 & 71) Kondo discloses a spin-valve thin-film magnetic read head (claim 8), as shown for example in FIGs. 1, 2(c), 3(f), including: a laminate 15; see Fig. 2(b) and paragraph [0034], comprising, a free magnetic layer 17, 18, a nonmagnetic conductive layer 19, a antiferromagnetic layer 21 for pinning the magnetic moment of the pinned magnetic layer 20, and a pinned magnetic layer 20 disposed appropriately with

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respect to the free layer in the thickness direction (re claims 6, 13 & 20); a pair of hard magnetic bias layers 25 (see [0060]) on either side of the MR multilayer film 15 in the track width direction; a pair of insulating layers 26/28 extending over the hard bias layers and both top ends of the laminate in the track width direction; a pair of lead layers 29 extending on the pair of insulating layers; wherein the pair of lead layers have overlay sections (unnumbered) which extend towards the center of the laminate and are in direct contact with parts of the laminate; (as per claims 3, 10 & 17) the insulating layers 26/28 are formed of an oxide including aluminum oxide (see paragraph [0037]); (as per claim 15) the described head would be utilized on a slider (not shown-see [0004]); (as per claims 4, 11, 18) wherein the insulating layers 26/28 have a thickness in the range of 0.5 nm to 20 nm, e.g., 20 nm (see [0037]); (as per claims 5, 12 & 19) the "thickness" of the overlay sections of the electrode layers are in the range of 0.1 um to 0.3 um, e.g., 100 nm = 0.1 um (see paragraph [0039]).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 9, 16, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of Hasegawa et al (JP 2000-276719). For a description of Kondo, see the rejection, supra. Kondo is expressly silent as to the width of the overlay sections, and in particular, being between 0.01 um to 0.05 um, as recited in the aforementioned claims.

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Hasegawa et al, however, discloses (see for example FIG. 1) a MR head laminate and hard bias layers 17 on either side thereof and lead layers 18 having an overlay area which spread across the MR laminate. More specifically, e.g., see FIG. 1, sets forth a dimension, i.e., "T3", which represents the overlay sections of the lead layers, and Hasegawa et al sets forth this dimension as being "preferably within a range from 0.05  $\mu\text{m}$  to 0.08  $\mu\text{m}$ ." (see paragraph [0087]). From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the aforementioned overlay dimensions to Kondo, as taught by Hasegawa et al. The motivation would have been: by providing this configuration, the percentage of the sense current directly flowing into the multilayer film without passing through the hard bias layers is increased, thus improving reproduction characteristics (see paragraph [0084]).

9. Claims 2, 5, 9, 12, 16, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi in view of Hasegawa et al (JP 2000-276719). For a description of Hayashi, see the rejection, supra. Hayashi is expressly silent as to the width of the overlay sections, and in particular, being between 0.01  $\mu\text{m}$  to 0.05  $\mu\text{m}$ , as recited in the aforementioned claims.

Hasegawa et al, however, discloses (see for example FIG. 1) a MR head laminate and hard bias layers 17 on either side thereof and lead layers 18 having an overlay area which spread across the MR laminate. More specifically, e.g., see FIG. 1, sets forth a dimension, i.e., "T3", which represents the overlay sections of the lead layers, and Hasegawa et al sets forth this dimension as being "preferably within a range from 0.05  $\mu\text{m}$  to 0.08  $\mu\text{m}$ ." (see paragraph [0087]). From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the aforementioned overlay dimensions to Hayashi, as

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taught by Hasegawa et al. The motivation would have been: by providing this configuration, the percentage of the sense current directly flowing into the multilayer film without passing through the hard bias layers is increased, thus improving reproduction characteristics (see paragraph [0084]).

Further, with respect to the thickness of the overlay section, Hayashi only discloses a thickness of  $44.5 \text{ nm} = 0.0445 \text{ um}$ , however, it would have been considered obvious to a skilled artisan to have provided a thicker overlay section. The motivation would have been: lacking any unobvious or unexpected results, forming a thicker overlay section would have been provided through routine engineering experimentation and optimization, such that it should follow, a thicker overlay section would have facilitated more current through the MR laminate, which would provide a better MR response, and thus, readily provided for.

Moreover, absent a showing of criticality, the relationships set forth in claims 5, 12, 19 are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir.

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1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

***Response to Amendment***

10. Applicant's arguments with respect to claims 1 & 71 have been considered but are moot in view of the new ground(s) of rejection. Newly cited references to Hayashi and Kondo read on the amended claims as applied, *supra*.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-TH 7:15am-4:45pm (and every other friday).

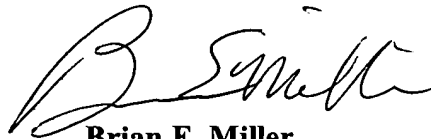
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



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A handwritten signature in black ink, appearing to read "B. E. Miller".

**Brian E. Miller**  
**Primary Examiner**  
**Art Unit 2652**

Bem  
June 23, 2004